

# FLOODED ISLANDS

FRANKS TRACT



BIG BREAK

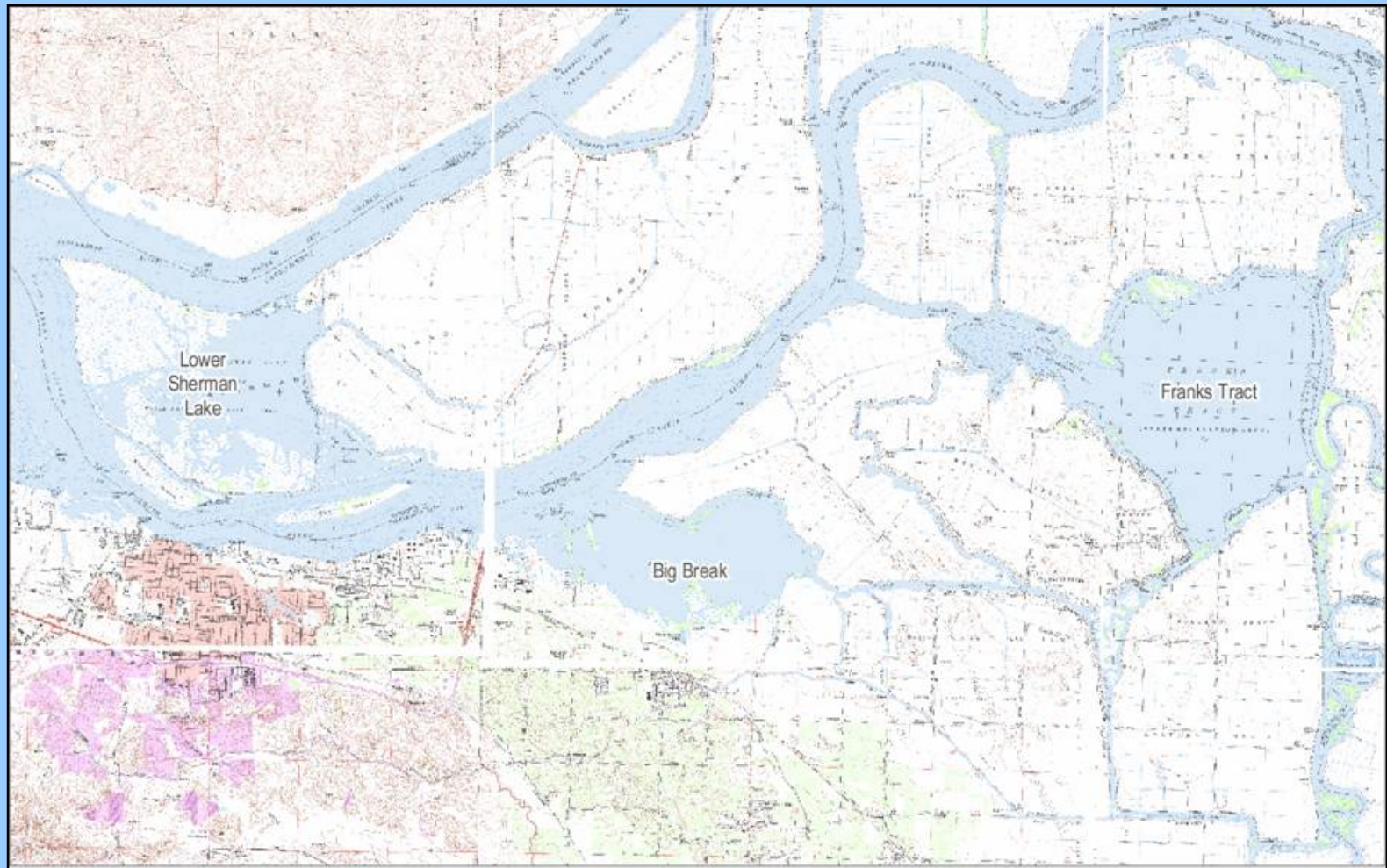


LOWER SHERMAN LAKE



# Flooded Islands Study Area

Franks Tract, Lower Sherman Lake, Big Break



# Purpose of the Flooded Island Study

To evaluate and develop potential projects for their ability to benefit water quality, ecosystem and recreation

# Background

- In 2001, DWR applied for a CALFED grant to conduct study
- In 2004, DWR executed contracts to begin study
- By June 2005, DWR must complete the study showing conceptual alternatives and cost estimates which would include a pilot project

# Study Approach

- Develop and evaluate site concepts to benefit objectives
- Opportunities and constraints analysis
- Preliminary alternatives development and analysis
- Comprehensive alternatives development and analysis



# Study Approach - Water Quality

- Initial modeling - water quality benefits more effective at Franks Tract
- Transport and mixing within Franks Tract
- Evaluation criteria
- Water quality improvement concepts

# Study Approach - Ecosystem

- Habitat restoration and enhancement
- Evaluation criteria
- Ecosystem restoration concepts

# Study Approach - Recreation

- Recreation concept/element development
- Evaluation criteria
- Recreation improvement concepts



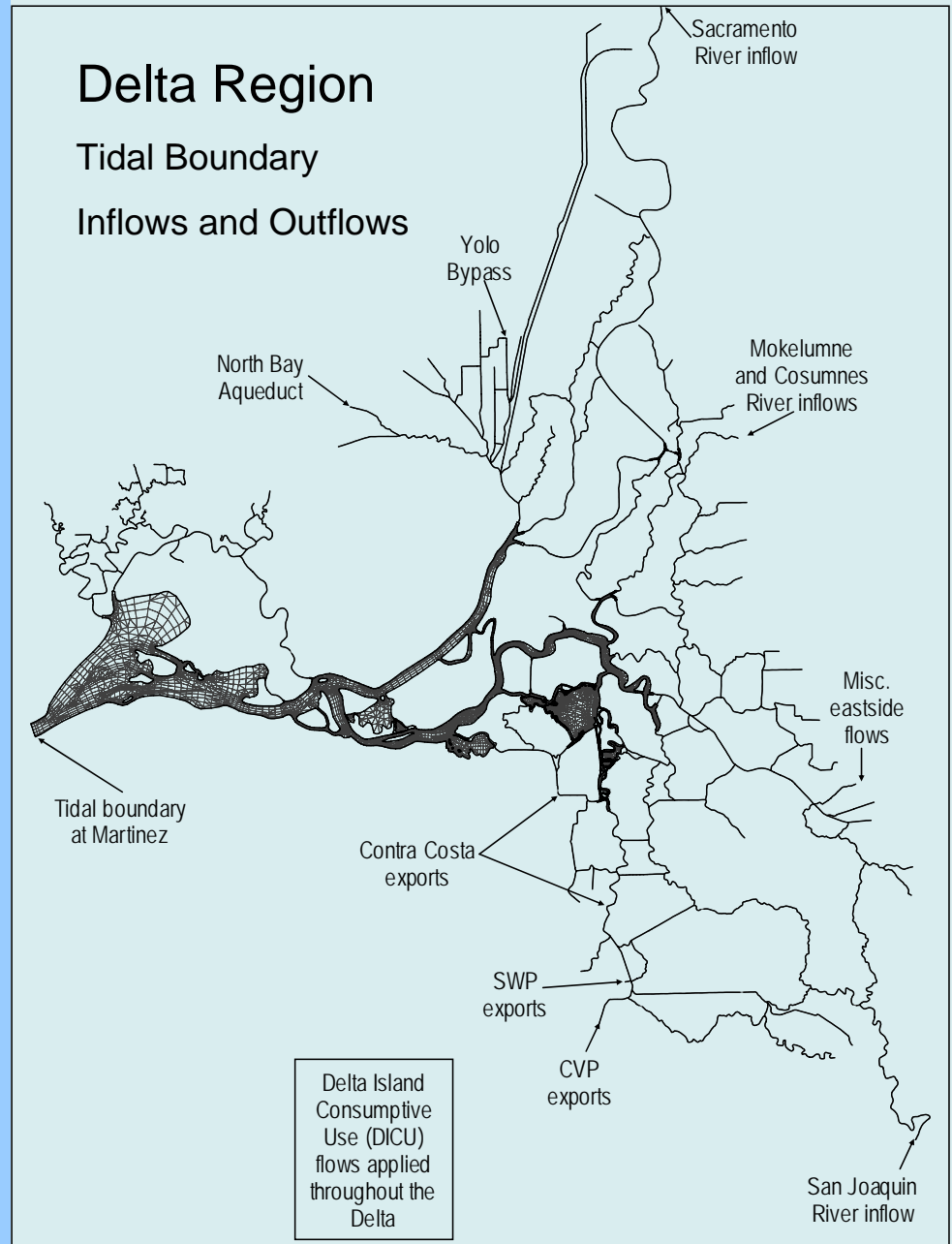
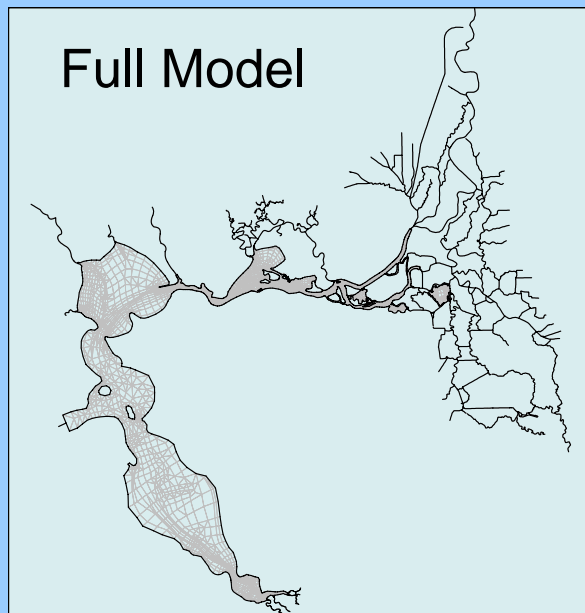
# Franks Tract Aerial Photo, September 2002



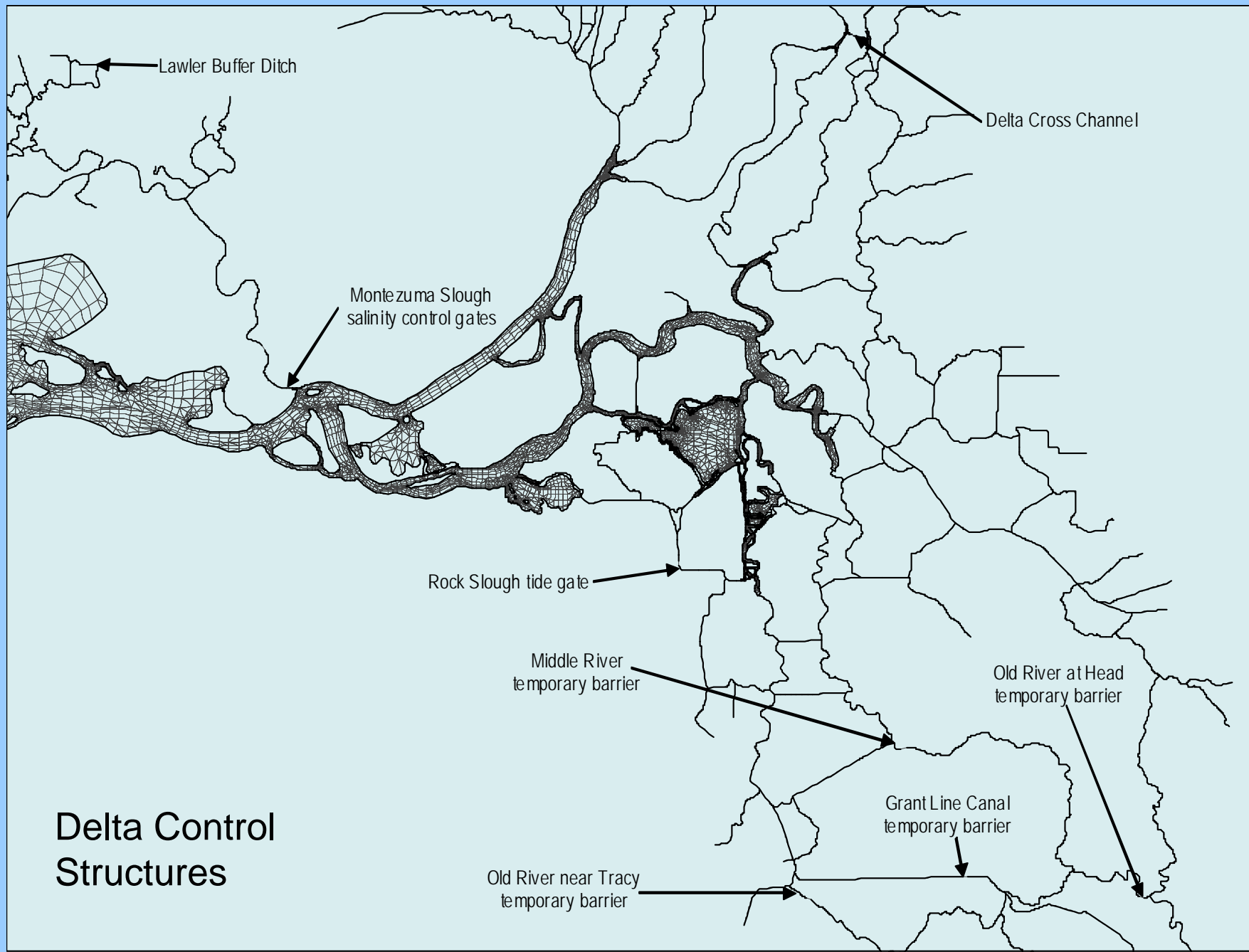
Source: Airphoto USA

# RMA Bay-Delta Model

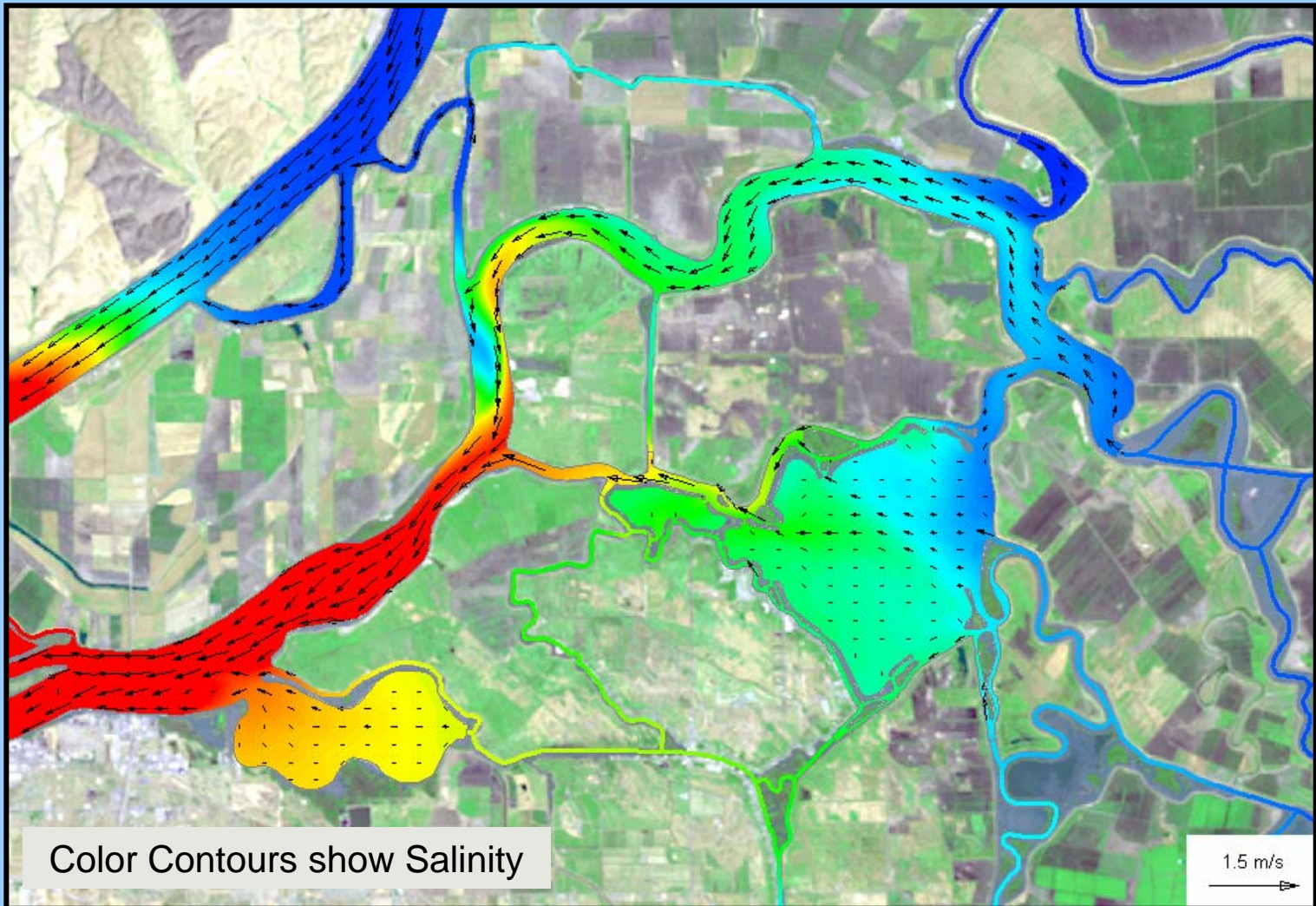
- Numerical Model of Flow and Salinity Transport
- Bay-Delta System (only Delta Region used in this study)
- Outputs include velocity, stage, channel flow, EC, residence time



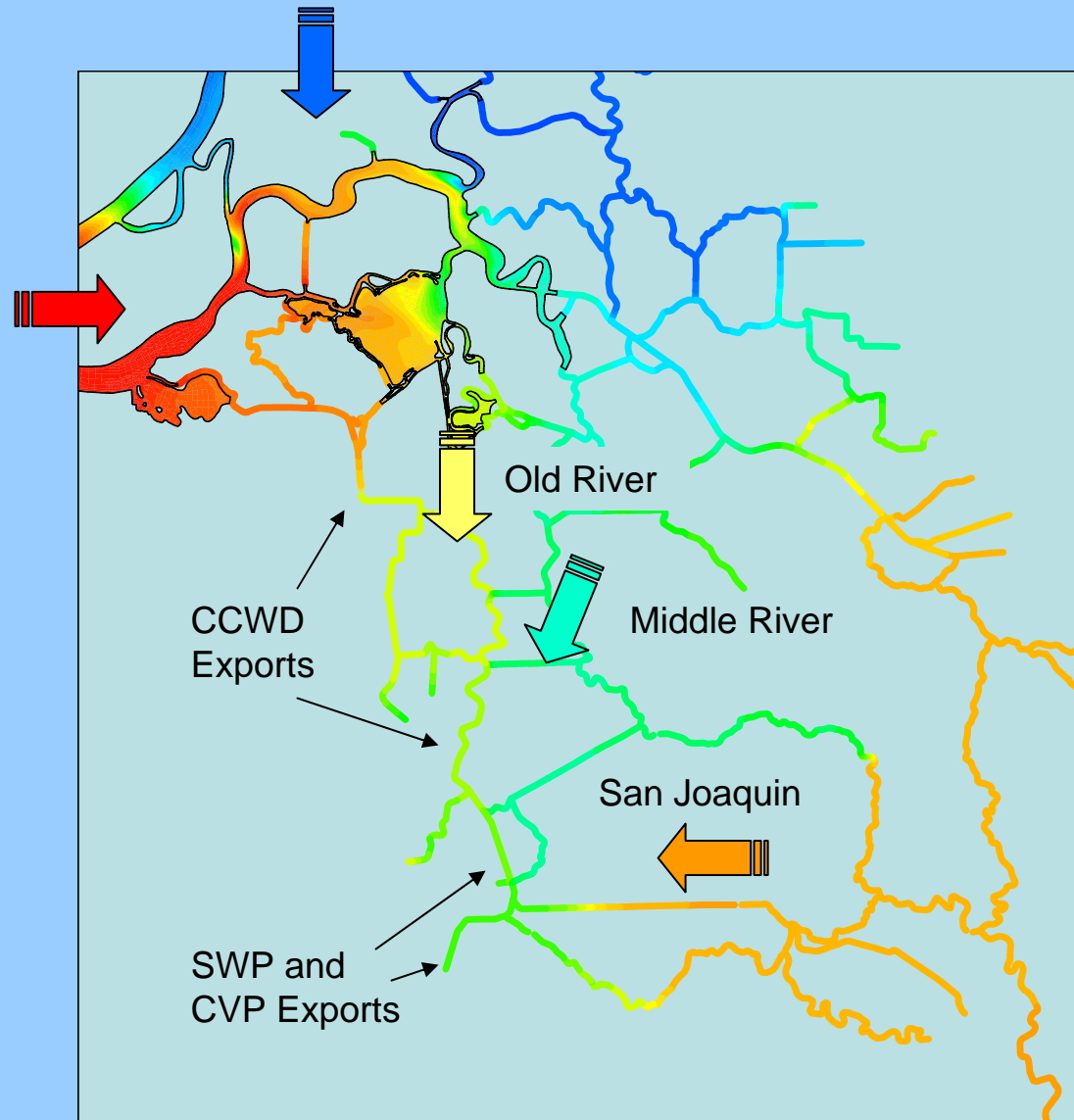




Complex mixing processes in the Delta are driven by River Inflows, Exports, and Tides



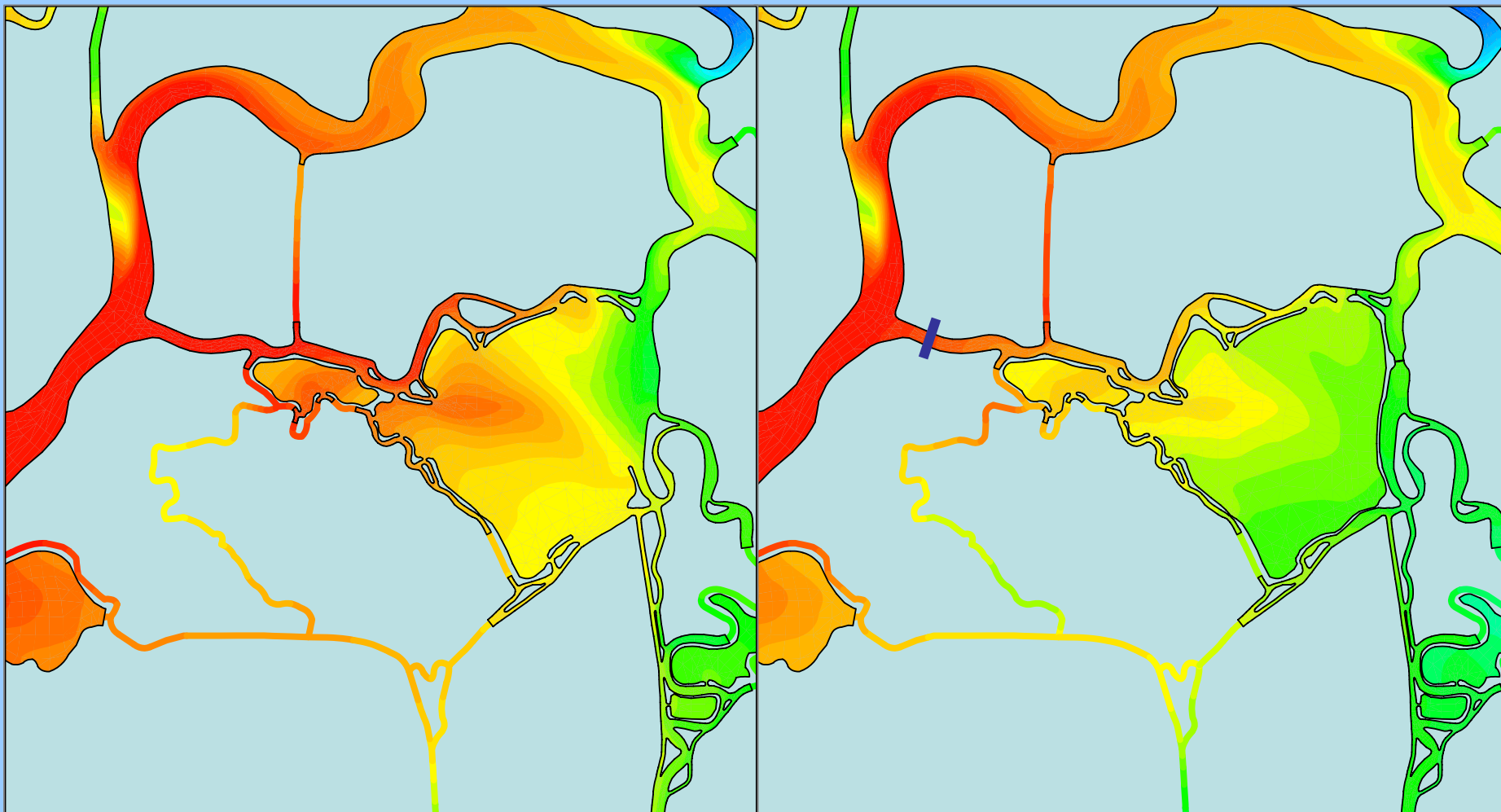
- Water Quality at the primary Delta Export Locations results from a mixture of water from Old River, Middle River, and the San Joaquin
- Franks Tract plays a central role in determining both the balance of flows and the water quality in Old River and Middle River
- Front Wheel Drive and Rear Wheel Drive concepts for salinity reduction at exports



# Alternative configurations change the flow and salinity transport in and around Franks Tract

Base

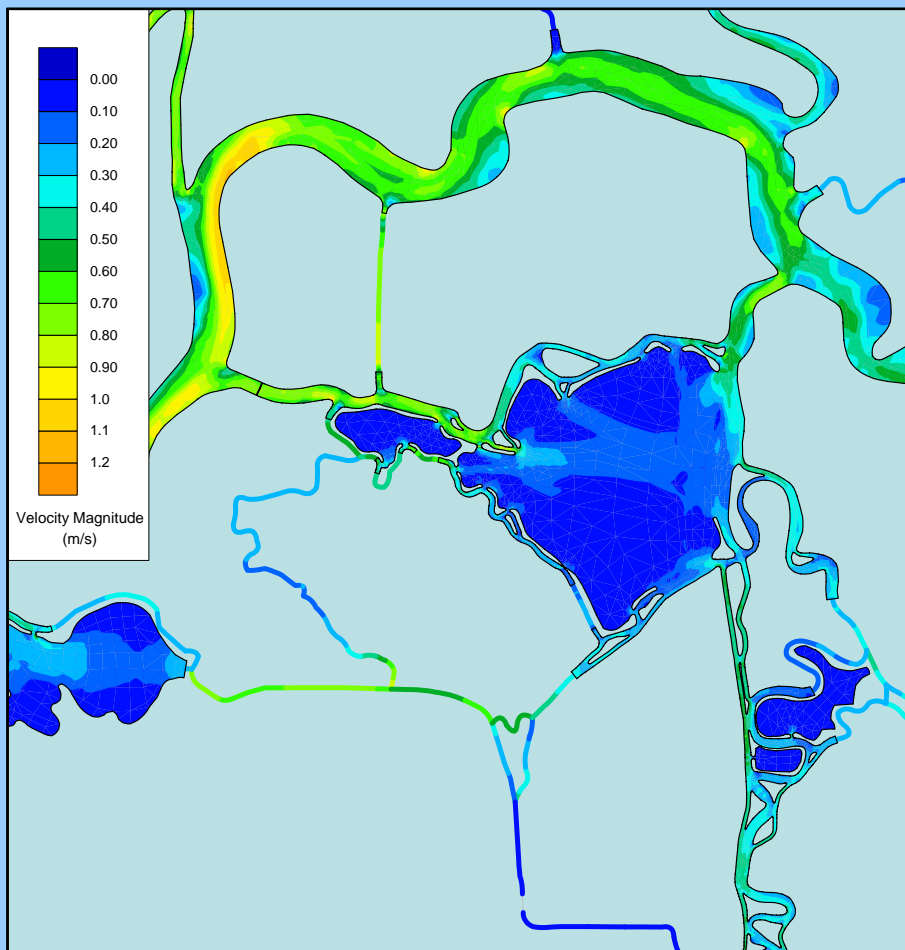
West False River Gate



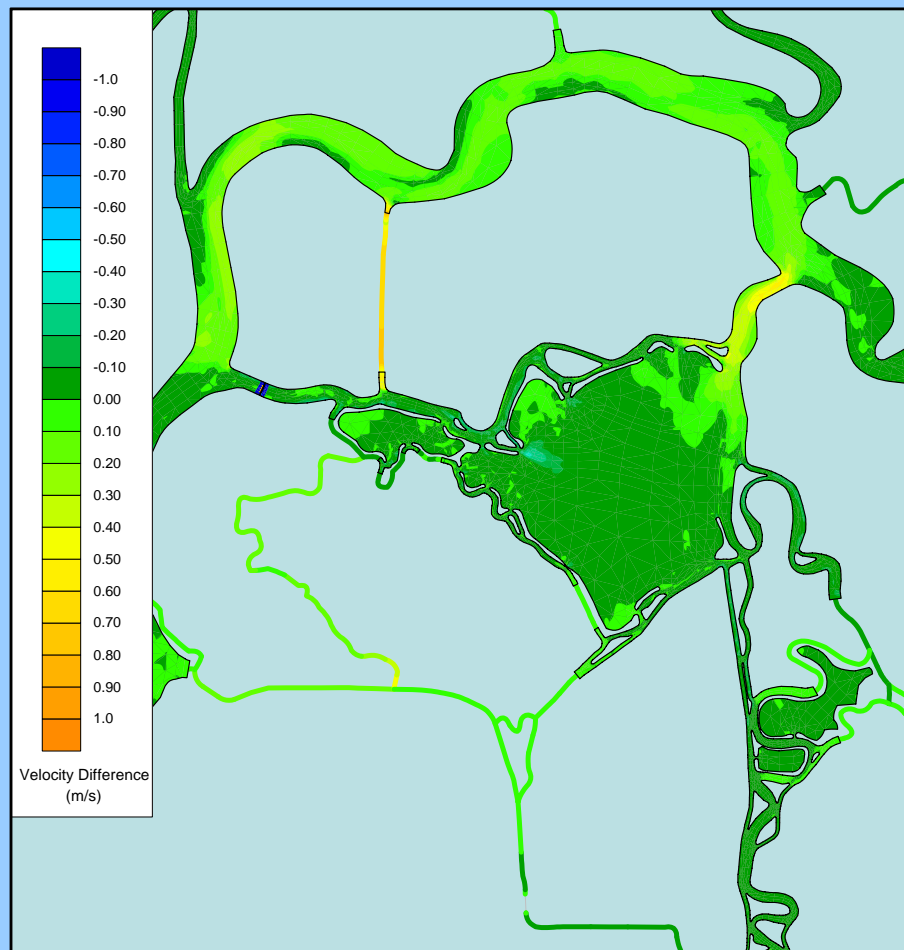


# Evaluation of Velocity Impact for West False River Gate Alternative

Peak Velocity



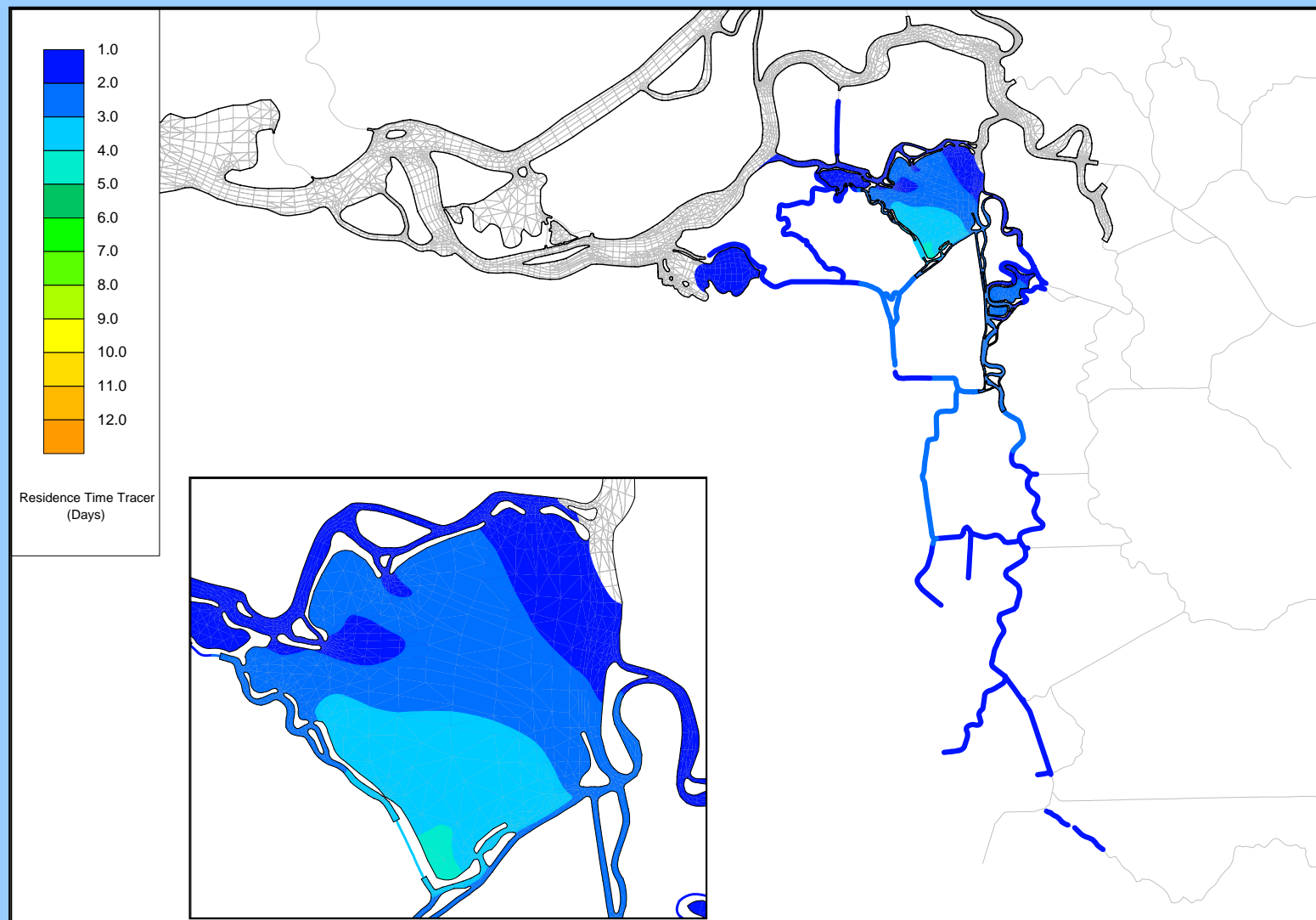
Change in Peak Velocity from Base  
(green represents no change)





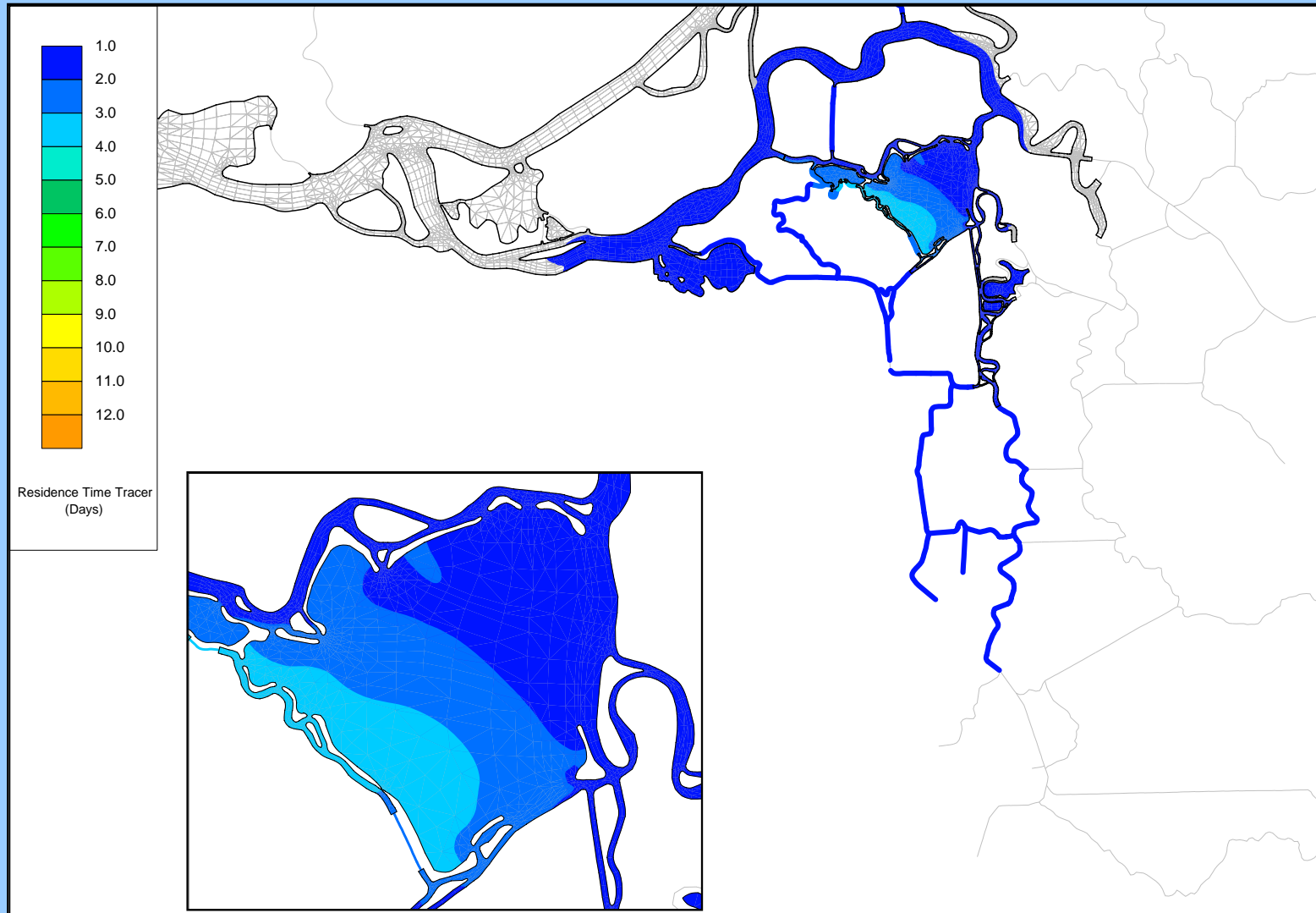
# Residence Time and Influence of Franks Tract

## Base Condition



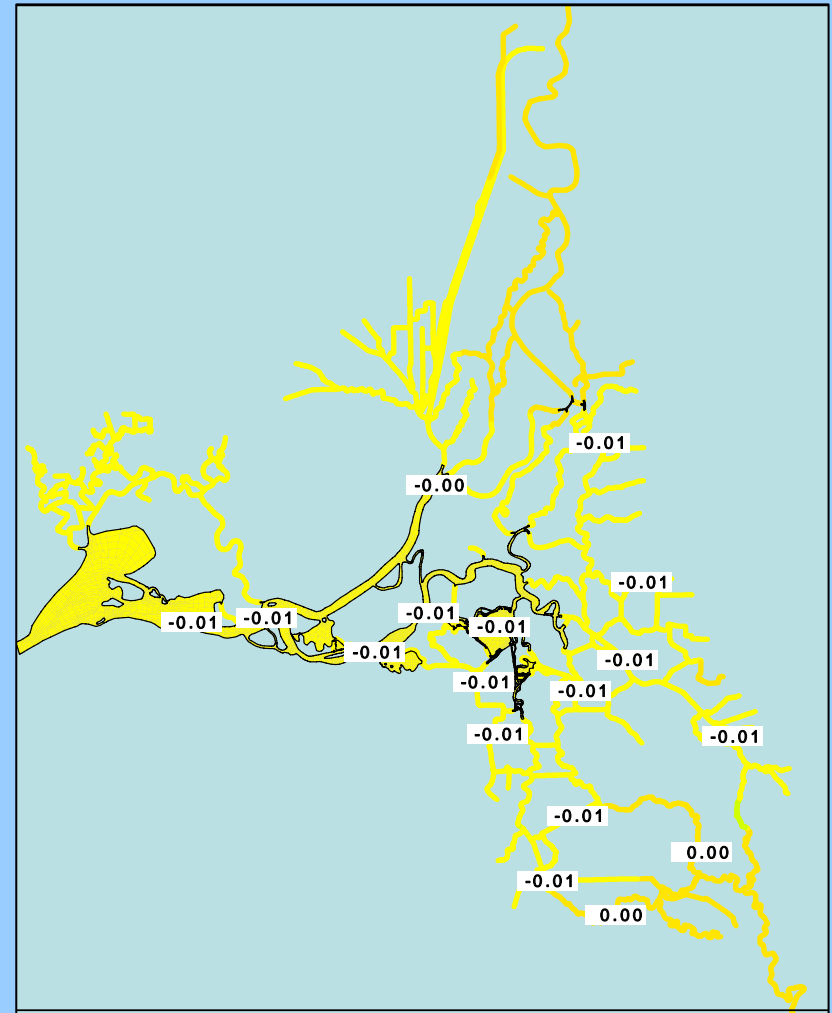
# Residence Time and Influence of Franks Tract

## West False River Gate Alternative



# Evaluation of Stage Changes

- Low Flow Conditions when minimum water levels are of critical concern to Delta agricultural water users
- Flood Flow and Peak Stage Conditions when high water levels might increase risk of levee failure
- Modeling showed that stage changes are expected to be very small

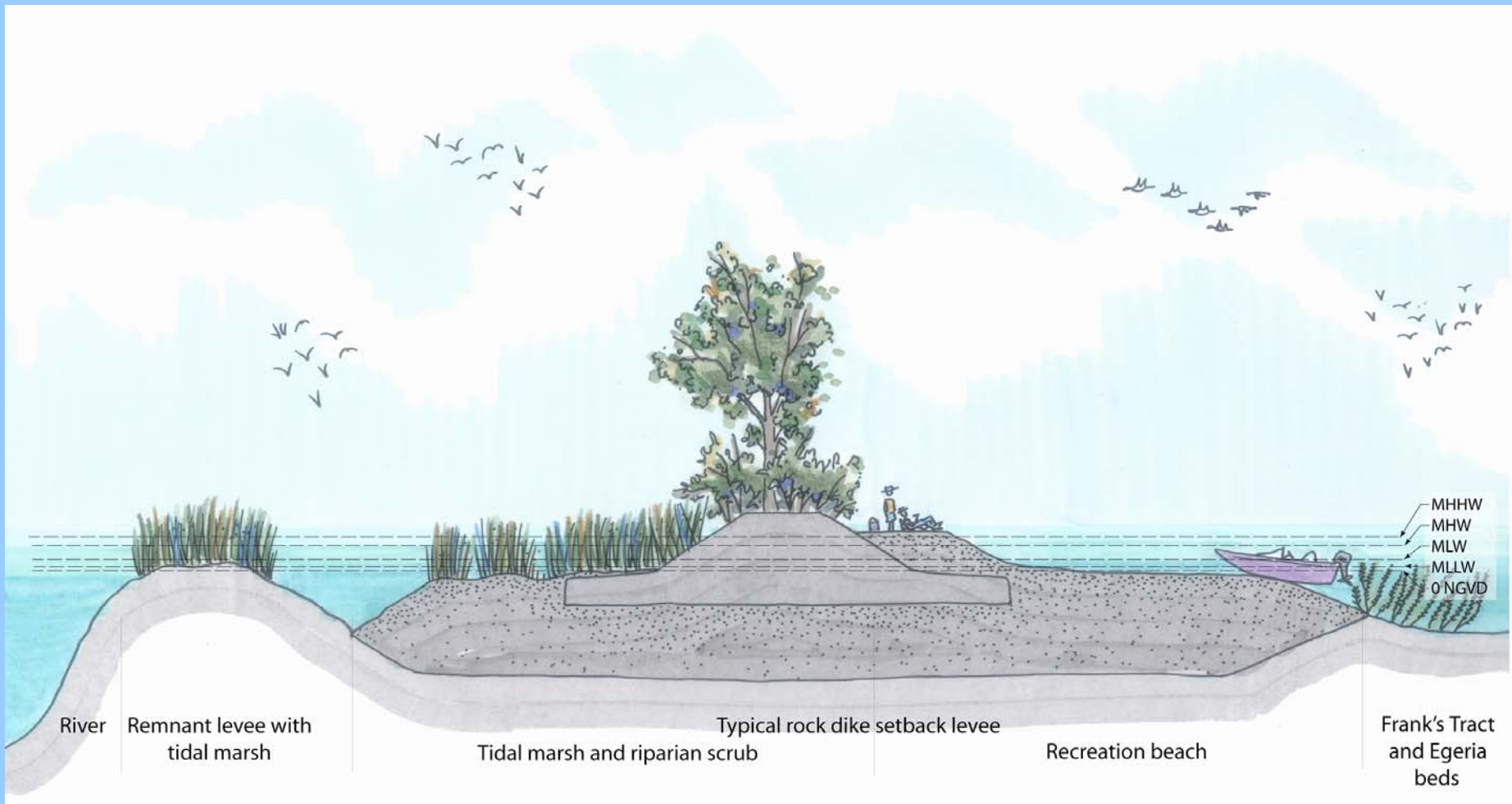


Difference in Minimum Stage between West False River Gate Alternative and Base Condition during July (values in meters)

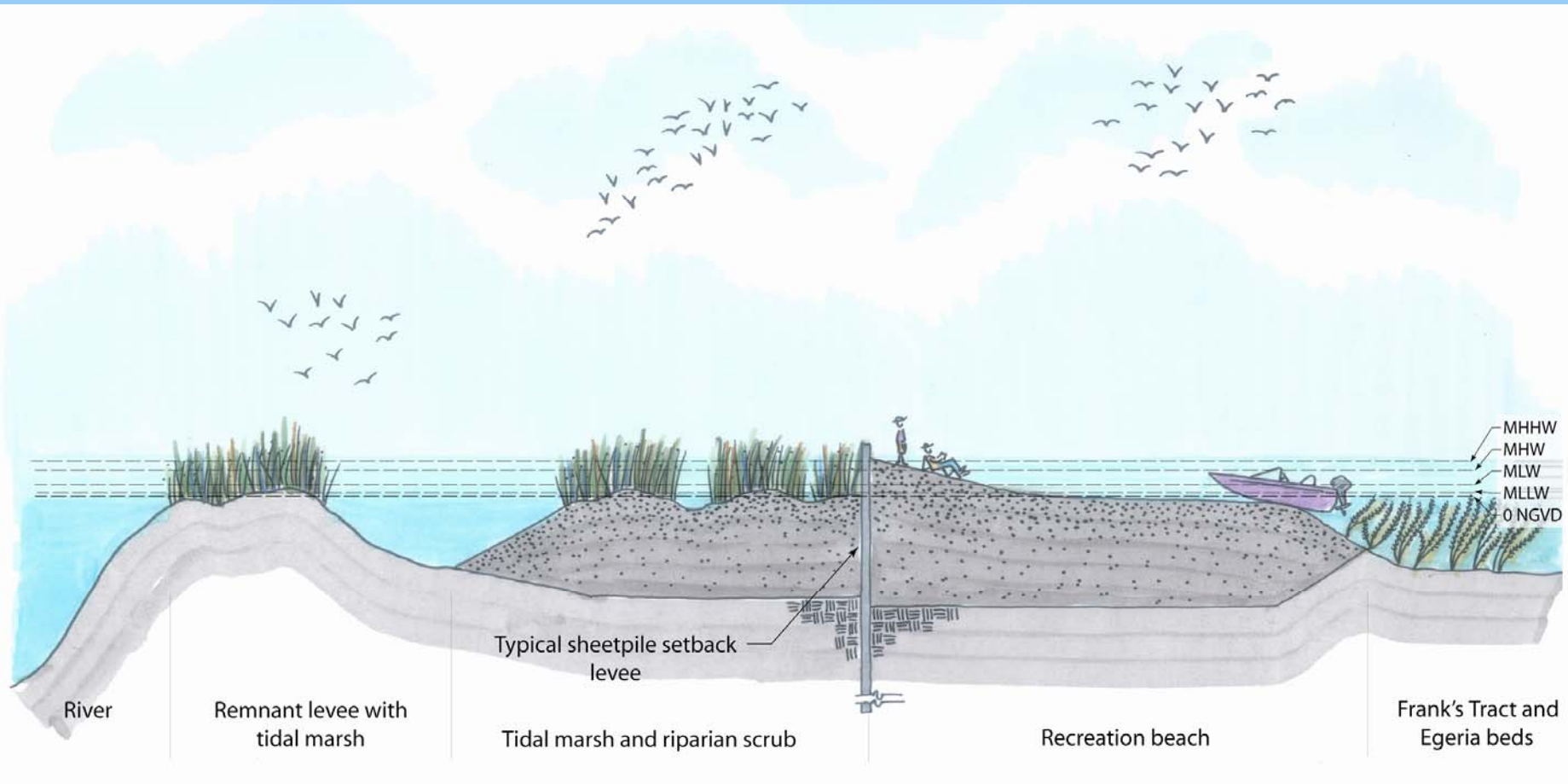
# Benefit Analysis

Alternative	% Reduction in Average EC (umhos/cm)			
	June 2002 - December 2002			
	SWP %reduc.	CVP %reduc.	CCWD Old River %reduc.	CCWD Rock Sl. %reduc.
West False River Gate	10.3	6.9	15.6	18.1
North Levee and Two Gates	2.0	0.0	7.1	11.5
East Levee and Three Gates	13.3	9.1	19.5	23.0
Cox	8.4	4.6	14.4	19.1

# Typical Rock Dike Levee with Recreational Beach – Cross Section

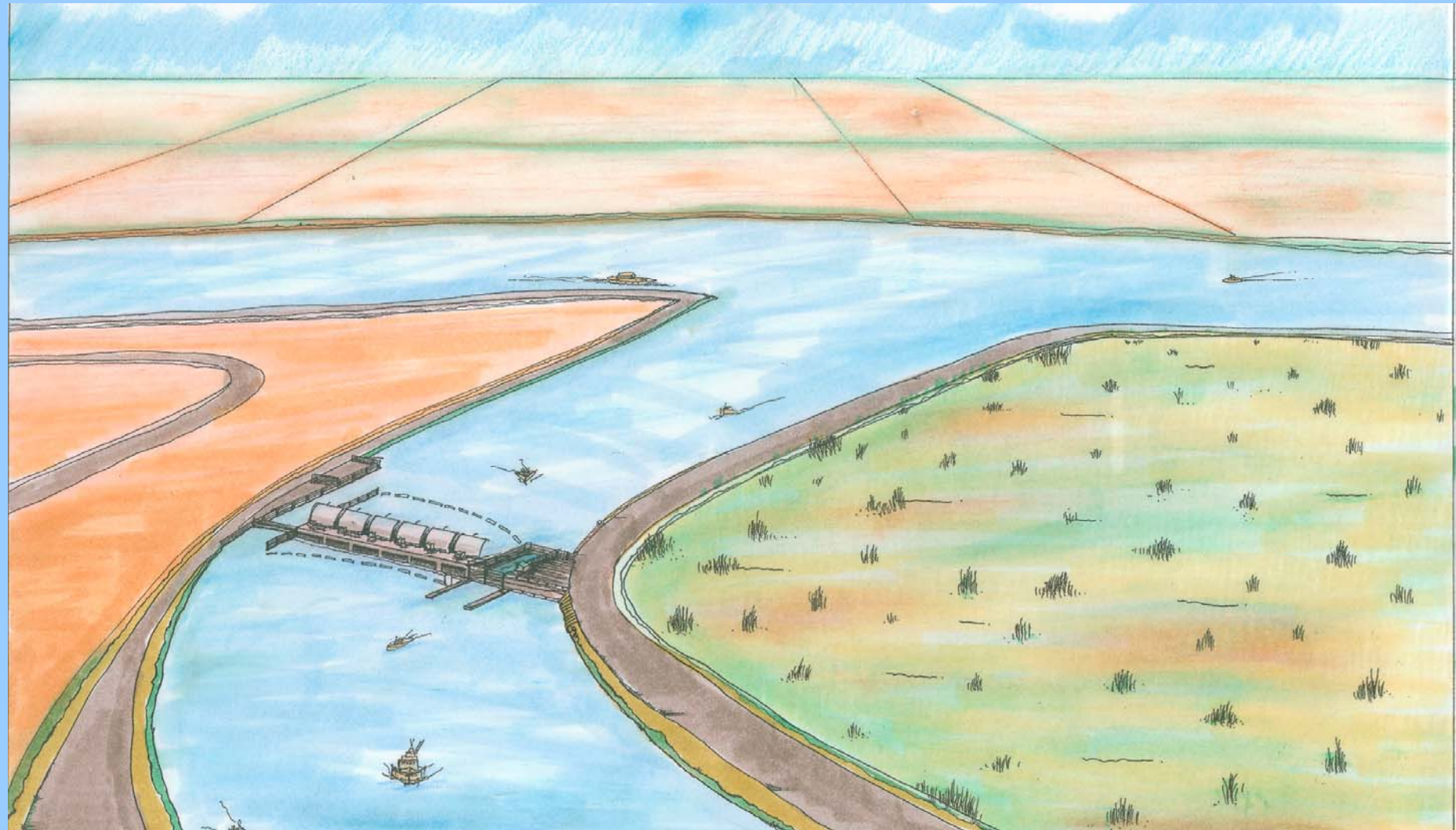


# Typical Concrete Sheetpile Levee with Recreational Beach – Cross Section





# Typical Tidal Gate with Boat Navigation Lock





# West False River Gate Alternative



## Alternative Features

1 operable gate

## Common Features

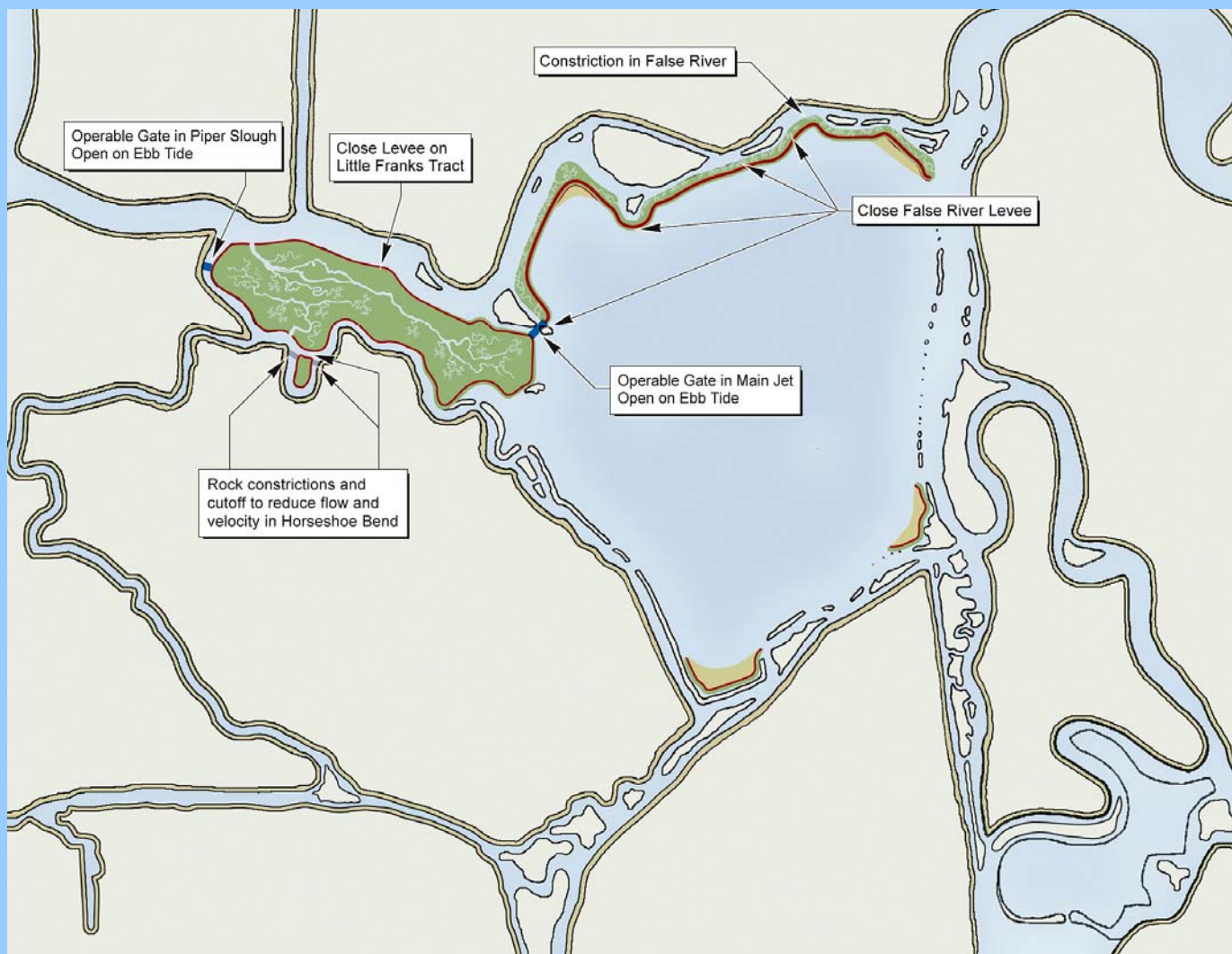
Little Franks Tract Marsh Restoration

4 Pocket Beaches

## Legend

- Existing Levee
- Rock Dyke
- Rock Constrictions
- Gates/Barriers
- Tidal Marsh
- Beaches

# North Levee and Two Gates Alternative



## Alternative Features

- 2 operable gates
- North Levee with Marsh
- False River Constriction

## Common Features

- Little Franks Tract Marsh Restoration
- 4 Pocket Beaches
- 2 Constrictions on Piper Slough
- Horseshoe Bend Cutoff

## Legend

- Existing Levee
- Rock Dyke
- Rock Constrictions
- Gates/Barriers
- Tidal Marsh
- Beaches

# East Levee and Two Gates Alternative



## *Alternative Features*

- 2 operable gates
- East Levee with Marsh and Beach

## *Common Features*

- Little Franks Tract Marsh Restoration
- 4 Pocket Beaches
- 2 Constrictions on Piper Slough
- Horseshoe Bend Cutoff

## Legend

- Existing Levee
- Rock Dyke
- Rock Constrictions
- Gates/Barriers
- Tidal Marsh
- Beaches



# Cox Alternative



## *Alternative Features*

2 non operable  
gates/barriers

## *Common Features*

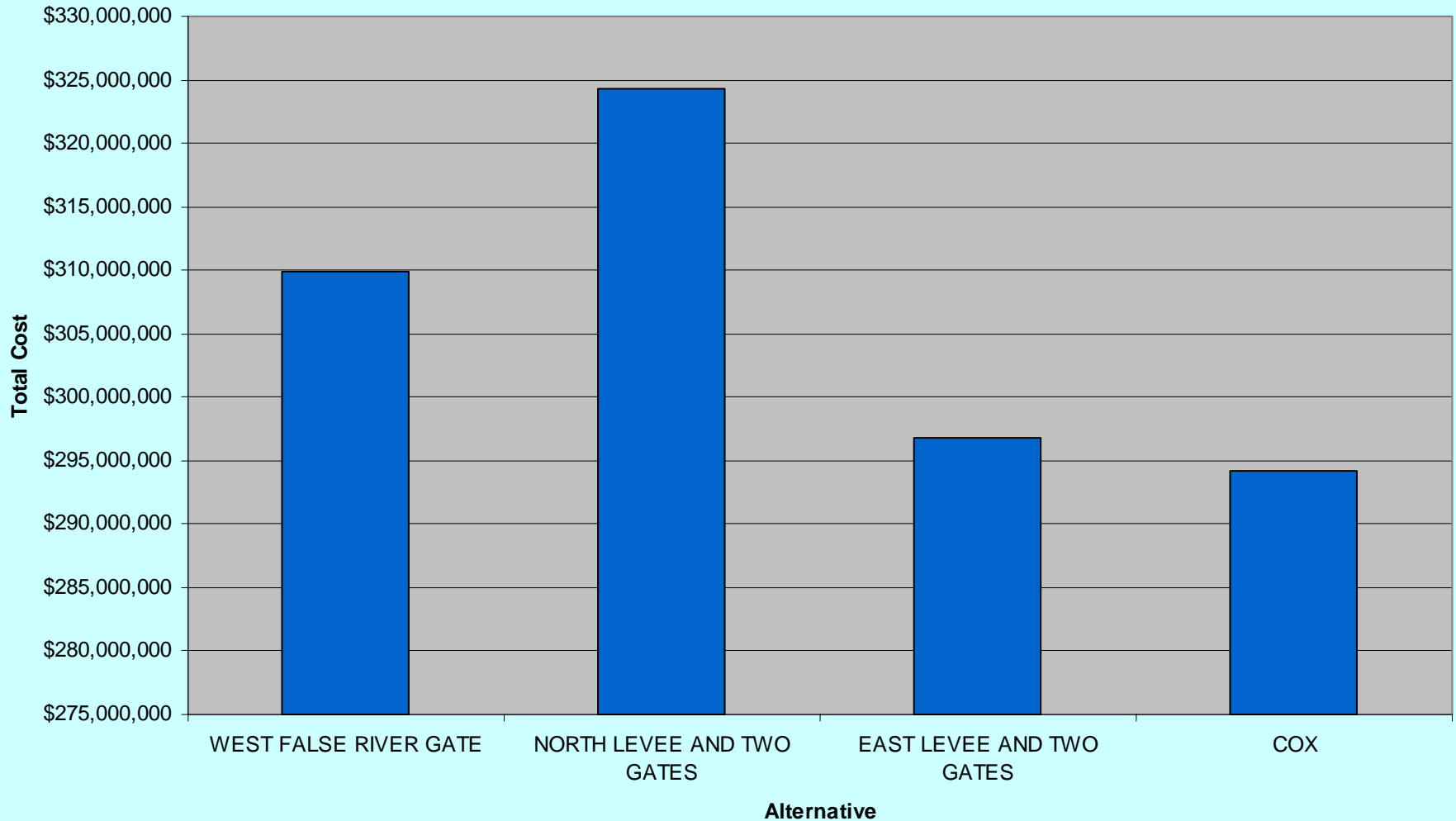
Little Franks Tract Marsh  
Restoration  
4 Pocket Beaches

## Legend

- Existing Levee
- Rock Dyke
- Rock Constrictions
- Gates/Barriers
- Tidal Marsh
- Beaches

# Cost Analysis

Summary Comparison of Alternatives Cost



# Next Steps

- Confer with California Bay-Delta Authority on further development
- Discuss interest with potential project beneficiaries
- Obtain funding commitment